Mental health and the covid-19 pandemic: a study with higher education students

Saúde mental e pandemia da Covid-19: estudo com discentes do ensino superior

Salud mental y pandemia covid-19: estudio con estudiantes de educación superior

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Abstract: This article aims to analyze the perception of the state of anxiety and the incidence of common mental disorders in higher education students of public and private institutions, in the situation of the coronavirus pandemic Covid-19 (acute respiratory infection caused by the coronavirus SARS -CoV-2). For this purpose, the method used is the application of an online form with profile survey of the respondents, questões referring to the perceptions of the students regarding the state of anxiety and the application of the instrument Self Reporting Questionnaire (SRQ-20). The results show accentuated and critical tables as to how much mental health it shows. The perception of the state of anxiety was identified in 86% of students of public institutions and 81% of students of private institutions. Likewise, the incidence of common mental disorders was identified in 67% of students from public institutions and 63% of students from private institutions.

Keywords: higher education; mental health; pandemic.

Resumo: Este artigo tem como objetivo analisar a percepção acerca do estado de ansiedade e da inci-dência de transtornos mentais comuns em discentes de ensino superior de instituições pública e parti-cular, na situação de pandemia pelo coronavírus Covid-19 (infecção respiratória aguda causada pelo coronavírus SARS-CoV-2). Para isso, utilizou-se como método a aplicação de um formulário online com levantamento de perfil dos respondentes, questões referentes às percepções dos estudantes acerca do estado de ansiedade e a aplicação do instrumento Self Reporting Questionnaire (SRQ-20). Os resultados apresentam quadros acentuados e críticos quanto à saúde mental da amostra. A percepção acerca do estado de ansiedade foi identificada em 86% dos discentes da instituição pública e 81% dos discentes da instituição particular. Do mesmo modo, a incidência de transtornos mentais comuns foi identificada em 67% dos discentes da instituição pública e 63% dos discentes da instituição particular.

Palavras-chave: ensino superior; saúde mental; pandemia.

Resumen: Este artículo tiene como objetivo analizar la percepción acerca del estado de ansiedad y de la incidencia de transtornos mentales comunes en los discentes de enseñanza superior de las institucio-nes públicas y particulares, en la situación de pandemia de pelo coronavírus Covid-19 (infección respi-ratoria aguda causada por el coronavírus SARS). -CoV-2). Para utilizarlo como método de aplicación de un formulario en línea con levantamiento del perfil de los encuestados, se realizan preguntas sobre las percepciones de los estudiantes sobre el estado de ansiedad y la aplicación del instrumento Self Repor-ting Questionnaire (SRQ-20). Los resultados presentan cuadros acentuados y críticos en cuanto a salud mental da muestra. La percepción acerca del estado de ansiedad se identificó en el 86% de los discentes de la institución pública y en el 81% de los discentes de la institución particular. Del mismo modo, una incidencia de transtornos mentales comunes se identificó en el 67% de los discentes de la institución pública y el 63% de los discentes de la institución particular.

Palavras clave: ensino superior; salud mental; pandemia.

1 Introduction

On February 26, 2020, Brazil confirmed its first case of Covid-19 in the city of São Paulo, an infectious disease caused by the novel coronavirus (Sars-CoV-2). Through self-reported travel histories and genetic analyses, it was concluded that the first infection was acquired through the importation of the virus from northern Italy (Jesus et al., 2020). Due to the rapid acceleration of global population contamination by the virus, in March 2020, the World Health Organization (WHO) declared a pandemic situation.

In various countries, emergency safety measures were taken to contain the spread of the coronavirus, which, although presenting symptoms similar to those of common colds, began to cause frequent hospitalizations and deaths. Public investments in field hospitals, protocol medications, equipment, and non-pharmacological measures to combat the disease, such as the use of face masks and hand sanitizer, became mandatory at that time.

Social isolation for suspected cases, confirmed cases, asymptomatic carriers, and contacts of confirmed cases, whether in a family or hospital setting, became a recommended protection measure through distancing (Bittencourt, 2020). However, with the further advancement of the disease, the administrative application of quarantines and more restrictive measures in urban centers became necessary. Lockdowns aimed to reduce population movement by maintaining only services classified as essential for subsistence.

In December 2020, some vaccines received emergency use authorization. However, initially, they were not sufficient to strongly contain the spread of the virus. Consequently, in the same year, Covid-19 rapidly emerged as the third leading cause of mortality in the world and the second in 2021. Almost 13 million lives were lost during this period (PAHO, 2024). By June 2024, the "Coronavirus Panel," a platform associated with the Ministry of Health for monitoring cases, reported over 40 million confirmed cases and more than 700 thousand deaths (Brazil, 2024). According to the Pan American Health Organization, Covid-19 erased a decade of progress in global life expectancy (PAHO, 2024).

Beyond the implications in the social, economic, and political sectors, the pandemic also directly affected education at various levels. Due to the impossibility of attending schools and colleges, institutions and educators had to abruptly organize to offer distance learning. At the same time, students also encountered new forms of teaching and learning mediated by information technologies, an issue complicated by the lack of access to electronic resources and/or the internet among the public, considering the country's social inequality (Stevanim, 2020).

Even before the pandemic began, studies already pointed to the relationship between academic life and the development of mental disorders in university students (Carleto *et al.*, 2018; Conceição *et al.*, 2019; Leão *et al.*, 2018). Pressures related to the costs of studies, academic performance, relationships with professors and peers, and uncertainties about the professional future were shown to be factors present in the daily lives of Brazilian students (Graner; Cerqueira, 2019).

Recently, research has highlighted the relationship between the social and emotional factors of the pandemic and its implications for education. This is because the social distancing imposed by the pandemic can be experienced as a mental suffering, resulting from the separation from family members and feelings involving grief processes, loss of freedom, loneliness, boredom, uncertainties about the future, and other aspects related to potential illness (Zwielewski *et al.*, 2020).

The study by Rodrigues et al. (2020) indicates that the impacts of the Covid-19 pandemic on medical students were related to the presence of psychiatric disorders, such as depression, anxiety, and post-traumatic stress. Other scientific research (Gundim *et al.*, 2021; Morales; Lopez, 2020) also demonstrated the interference of the pandemic in the academic lives of university students, with negative effects on mental health.

Based on such evidence, this article aims to analyze the perception of anxiety and the incidence of common mental disorders among higher education students from public and private institutions during the Covid-19 pandemic. To achieve this, an online questionnaire was used as a method, gathering respondents' profiles, questions regarding students' perceptions of anxiety, and the application of the Self Reporting Questionnaire (SRQ-20).

2 Materials and Methods

Through institutional email and instant messaging networks, students from two Higher Education Institutions (HEIs), one public and one private, were invited to voluntarily participate in the study. This consisted of the application of an online questionnaire to be answered individually.

The online questionnaire contained, in the respective order, the objectives and guidelines of the research present in the Informed Consent Form (ICF), a questionnaire regarding the population profile (based on declared gender, higher education institution, course, enrolled semester, and living conditions), questions about the subject's perception of their anxiety state during the pandemic, and questions related to the

SRQ-20 instrument. After reading and agreeing to the ICF, each individual received a copy of the document in the email registered in the form.

2.1 Perception of anxiety State

The questions contained in the online questionnaire regarding the student's perception of their anxiety state during the pandemic were described as: "Do you notice any changes in your anxiety state during the pandemic?" and "To what extent does this anxiety state interfere with your academic activities?" The first question had dichotomous responses (yes/no), and the second had a 4-point Likert scale response (does not interfere, interferes slightly, interferes, and interferes greatly).

2.2 SRQ-20

The online questionnaire also contained 20 questions from the SRQ-20 instrument, a self-administered questionnaire for screening common mental disorders (non-psychotic), such as psychosomatic, anxious, and depressive sufferings. Studies show that the validity of the questionnaire for the Brazilian population has a sensitivity of 83% and a specificity of 80% (Gonçalves; Stein; Kapczinski, 2008), making it widely used in research with diverse populations, including university students (Silva; Cerqueira; Lima, 2014).

The 20 questions in the instrument presented dichotomous response options of yes/no. In its evaluation, each "yes" response receives 1 point, with the total score ranging from 0 to 20. In the sum of the points, 0 to 6 indicates the absence of mental suffering, and scores between 7 and 20 indicate the presence of common mental disorders and the need for specialized assistance.

Due to the wide scoring range of the SRQ-20, varying from 7 to 20, ranges of mental suffering severity were developed based on the participants' scores. Thus, the scores from 7 to 20 were divided into three ranges: scores from 7 to 10 were classified as mild suffering, scores from 11 to 15 were classified as moderate suffering, and scores from 16 to 20 were classified as severe suffering.

2.3 Data analysis procedure

Based on the responses obtained from the online questionnaire, a database was created in an Excel spreadsheet. In this spreadsheet, a variable was created to identify

the participating HEIs, private and public. The data were initially recorded in alphabetical format and later coded on a numerical scale to facilitate statistical analyses. The Excel database was transferred to the SPSS software version 15.0, which enabled the quick generation of descriptive tables and the development of explanatory variables from existing ones, such as course area, course stage, and SRQ-20 severity ranges.

Descriptive and inferential statistical analyses were also conducted to compare sample means (Student's t-test) between two groups (gender, HEI) or more groups (ANOVA test) for the variables course stage and course area. Finally, Pearson product-moment correlation analyses were performed to understand possible relationships between variables of interest such as gender, race, course, semester, number of people in the household, use of psychiatric medication, and medical or therapeutic follow-up, always in relation to the SRQ-20 results.

The descriptive and comparative analyses were presented based on the population profile, considering the declared gender, higher education institution, course, and enrolled semester. Additionally, the analyses addressed the two questions that covered the individual's perception of their anxiety state during the pandemic and descriptive analyses of the SRQ-20 results, which were presented by total score and severity ranges - mild, moderate, and severe - always based on a variable, whether it be gender, HEI, course stage, or course area.

2.4 Ethical consideration

The research received ethical approval from the Research Ethics Committee (REC) through the protocol CAEE: 36878820.9.0000.5404.

3 Results

3.1 Population

A total of 459 students from 15 undergraduate courses, enrolled between the 1st and 10th semesters, from two HEIs (one public and one private) located in the interior of São Paulo participated in the study.

Of the total participants, 69.7% (N=320) were from the public HEI sample, and 30.3% (N=139) were students from the private HEI. Regarding the public institution, 56% (N=180) identified as female, 42% (N=135) as male, 1% (N=3) as non-binary, and

1% (N=2) preferred not to say. Regarding the private institution, 76% (N=286) identified as female, 24% (N=168) as male, with zero non-binary and zero preferring not to say.

The undergraduate courses attended by students from both HEIs were classified into health, exact sciences, and humanities areas. The exact sciences courses included Manufacturing Engineering, Production Engineering, Civil Engineering, and Mechanical Engineering; in the humanities area, the undergraduate courses included Administration, Public Administration, Law, Accounting, and Human Resources; in the health area, the courses included Sports Science, Nutrition, Psychology, Physiotherapy, and Nursing.

Of the total students from both institutions, the largest participation was centered on students from the humanities (N=169) and health (N=169) courses, compared to students enrolled in exact sciences courses (N=121). Table 1 presents the distribution of participants by type of HEI, course area, course, in percentage, and actual number.

Table 1 – Distribution of participants by course area, course, and type of HEI

Area	Course	Type of Higher Education Institution				Total	
		Public		Private			
		N	%	N	%	N	%
Exact sciences	Manufacturing engineering	57	50%	0	0%	57	47%
	Production engineering	58	50%	0	0%	58	48%
	Civil engineering	0	0%	2	33%	2	2%
	Mechanical engineering	0	0%	4	67%	4	3%
	Total	115	100%	6	100%	121	100%
Humanities	Administration	75	51%	7	32%	82	49%
	Public administration	72	49%	0	0%	72	43%
	Law	0	0%	9	41%	9	5%
	Accounting sciences	0	0%	2	9%	2	1%
	Human Resources	0	0%	4	18%	4	2%
	Total	147	100%	22	100%	169	100%
Health	Sport sciences	22	38%	0	0%	22	13%
	Nutrition	36	62%	0	0%	36	21%
	Psychology	0	0%	77	69%	77	46%
	Physiotherapy	0	0%	7	6%	7	4%
	Nursing	0	0%	25	23%	25	15%
	Postgraduate (Nursing)	0	0%	2	2%	2	1%
	Total	58	100%	111	100%	169	100%
Total		320		139		459	

The sample was also analyzed based on the semester the student was enrolled in at the time of the research. Students enrolled in nearly all semesters of the courses participated. For analysis purposes, the semesters, which ranged from 1 to 10 depending on the course, were grouped based on the stage of the course. They were classified as entering students (1st to 3rd semester), intermediate students (4th to 7th semester), and graduating students (8th to 10th semester).

Of the total sample, combining students from both public and private institutions, based on the stage of the course, 29% represented entering students, 39% intermediate students, and 31% graduating students. Table 2 presents the sample distribution by type of HEI, course stage, and area of study.

Table 2 – Sample distribution by type of HEI, area of study, and course stage

Field of study	Type of Higher Education Institution							
	Public				Private			
	Time of the course			Total	Time of the course			Total
	Entrants	Intermediates	Graduates		Entrants	Intermediates	Graduates	
Exact sciences	19	39	57	115	0	4	2	6
Humanities	38	76	33	147	11	6	5	22
Health	27	19	12	58	39	37	35	111
Total	84	134	102	320	50	47	42	139
%	26%	42%	32%	100%	36%	34%	30%	100%

It was considered relevant to analyze the sample based on gender by course area and type of HEI. As shown in Table 3, it can be observed that, from the total sample, the female gender has a higher presence in the Health (78%) and Humanities (63%) areas, although there is significant participation of women in the Exact Sciences courses (40%), in relation to the total number of male respondents.

Table 3 – Distribution of students by gender across course areas and type of HEI

Field of study	Self-declared gender	Type of Higher Education Institution				Total	
		Public		Private			
		N	%	N	%	N	%
	Female	48	42%	0	0%	48	40%
Exact sciences	Male	66	57%	6	100%	72	60%
	Non-binary	0	0%	0	0%	0	0%
	Undeclared	1	1%	0	0%	1	1%

	Total	115	100%	6	100%	121	100%
	Female	92	63%	14	64%	106	63%
Humanities	Male	52	35%	8	36%	60	36%
	No binary	2	1%	0	0%	2	1%
	Undeclared	1	1%	0	0%	1	1%
	Total	147	100%	22	100%	169	100%
	Female	40	69%	92	83%	132	78%
Health	Male	17	29%	19	17%	36	21%
	No binary	1	2%	0	0%	1	1%
	Undeclared	0	0%	0	0%	0	0%
	Total	58	100%	111	100%	169	100%
Total		320		139		459	

Source: Own elaboration.

Male students are also present in the Health (21%) and Humanities (36%) courses, although in a lower percentage compared to female students. Of the total male participants, there was a strong representation in the Exact Sciences area (60%).

Due to the low participation of students who identified as non-binary or did not declare their gender (0% to 1%), very small samples do not meet the criteria for normal distribution, an essential premise to support the use of parametric statistics. Therefore, all subsequent descriptive and statistical analyses will be presented considering only the female and male genders.

3.2 Perception of anxiety State

The questionnaire section on mental health investigated the participants' perception of their anxiety state during the Covid-19 pandemic.

Of the total sample (comprising 459 participants), 85% (N=390) reported perceiving some degree of change in their anxiety state. Analyzing this question by HEI, 86.6% of students from the public institution considered themselves more anxious during the pandemic, compared to 81.3% of students from the private HEI.

When asked how much their current anxiety state has interfered with their academic activities, 10.5% (N=48) of the total sample reported no interference in their academic activities; 30.3% (N=139) indicated some interference; 19% (N=87) indicated little interference, and 40.3% (N=185) reported a lot of interference. When this question was analyzed by type of HEI and course area, the data revealed different perceptions among students based on their course area. Table 4 presents this analysis.

Table 4 – Distribution of frequency regarding the interference of anxiety in academic activities by HEI and course area

Type of HEI	Anxiety interferes with academic activities?	Field of course						Total	
		Exact sciences		Humanities		Health			
		N	%	N	%	N	%	N	%
Public	Does not interfere	10	9%	11	7%	2	3%	23	7%
	Minimally interferes	40	35%	44	30%	19	33%	103	32%
	Slightly interferes	22	19%	22	15%	8	14%	52	16%
	Greatly interferes	43	**37%**	70	**48%**	29	**50%**	142	**44%**
	Total	115	100%	147	100%	58	100%	320	100%
Private	Does not interfere	3	**50%**	2	9%	20	18%	25	18%
	Minimally interferes	0	0%	8	**36%**	28	25%	36	26%
	Slightly interferes	2	33%	7	32%	26	23%	35	25%
	Greatly interferes	1	17%	5	23%	37	**33%**	43	**31%**
	Total	6	100%	22	100%	111	100%	139	100%

Source: Own elaboration.

The data organized in Table 4 allow us to state that 44% of students from the public HEI, across the areas of Exact Sciences, Humanities, and Health, perceived that anxiety has greatly interfered with their academic activities, 16% declared it interferes slightly, and 32% that it minimally interferes. In contrast, 31% of students from the private HEI perceived that anxiety has greatly interfered with their academic activities, 25% declared it interferes slightly, and 26% that it minimally interferes.

3.3 Common mental disorders by SRQ-20

Regarding the screening for common mental disorders using the SRQ-20, it was observed that, of the total sample of respondents, 34% (N=157) of students scored between 0 and 6. The majority of the sample, 66% (N=302), scored between 7 and 20, indicating the presence of physical and emotional symptoms compatible with a mental suffering condition. Regarding the type of HEI, the sample distribution remained equivalent.

It was observed that, of the total students from the public HEI, 33% (N=105) presented adequate mental health conditions according to the SRQ-20 score (score less than 7). A similar percentage was observed in the sample from the private HEI, with 37% (N=52) presenting good mental health conditions. Therefore, 67% (N=215) of students from the public HEI and 63% (N=87) of students from the private HEI showed symptoms indicating a condition of mental suffering.

The Student's t-test was conducted to verify if there was a statistically significant difference between the SRQ-20 means in the comparison of the student samples from the two HEIs. The test revealed that the public HEI had a mean of 8.92, SD = 4.9 on the SRQ-20, and the private HEI had a mean of 8.72, SD = 5.4. The independent t-test showed that there is no statistically significant difference between the students from the two HEIs.

The SRQ-20 result was also analyzed in relation to the stage of the course. This variable was created based on the distribution of academic semesters according to the course stage (entering, intermediate, and graduating students). Each of these groups had means above 7 points, indicating the presence of signs of mental illness.

A statistical analysis of the total SRQ-20 result in relation to the stage of the course was conducted to determine if there is a significant difference between the means of the three groups (course stages). The group of entering students had a mean of 9.64 and a standard deviation of 5.3; the intermediate students (M=8.4; SD = 4.9); and the graduating students with a mean of 8.71 and a standard deviation of 4.9. The ANOVA test did not show statistically significant differences between the means of the students analyzed based on the course stage. This result suggests that the level of mental illness is similar across all academic semesters.

According to the SRQ-20 instrument, the higher the score obtained, the greater the number of symptoms presented by the individual. That is, the higher the SRQ-20 score, the more intense or symptomatic the perceived mental suffering of the person. Table 5 presents the scores obtained by the students on the SRQ-20 according to the severity ranges of suffering – mild, moderate, and severe – separated by type of HEI and gender.

Table 5 – Distribution of the sample according to SRQ-20 severity ranges, type of HEI, and gender

Severity - RSQ-20 Score Ranges	Type of HEI									
	Public					Private				
	Gender					Gender				
	Female N	%	Male N	%	Total	Female N	%	Male N	%	Total
Without distress (0 - 6)	32	18%	72	53%	104	36	34%	16	48%	52
Mild distress (7 - 10)	51	28%	31	23%	82	23	22%	8	24%	31
moderate distress (11-15)	76	42%	26	19%	102	30	28%	8	24%	38
severe distress (16-20)	21	12%	6	4%	27	17	16%	1	3%	18
Total	180	100%	135	100%	315	106	100%	33	100%	139

Source: Own elaboration.

Considering scores from 11 to 20, which comprise the moderate and severe severity ranges, it is noted that 41% (N=132) of participants from the public HEI and 40% (N=56) of participants from the private HEI reached this score range, indicating a high percentage of students presenting numerous psychosomatic, anxious, and depressive symptoms. Based on gender, there is a higher frequency of male students (N=72) in the public HEI without mental suffering symptoms, with a visible reduction in frequency in the higher severity ranges.

The Student's t-test ($t(452) = 6.8$; $p < 0.001$) indicated that there are statistically significant differences between students based on gender regarding the SRQ-20 severity ranges. The mean (M=2.40; SD = 0.9) for the female gender is significantly higher than the mean (M = 1.76; SD = 0.9) for the male gender, indicating that, although both genders exhibit symptoms of mental suffering, the female gender presents a greater set of psychosomatic symptoms.

Finally, some Pearson correlation analyses were conducted between certain variables in the population profile questionnaire and the SRQ-20. The aim of the correlation analyses is to determine if the variables involved in the analysis are related, which can be verified by the pattern of changes in the values of one variable as a function of changes in the values of the other variable (Dancey; Reidy, 2006). This relationship is analyzed based on intensity (correlation index) and significance (probability of sampling error occurrence). Weak and negative correlations were found between the variables gender and SRQ-20, being ($r = -0.320$; $p > 0.001$) in the public HEI and ($r = -0.237$; $p > 0.001$) in the private HEI. This result may indicate that the gender variable, although showing weak and moderate correlations, is significant in the analysis of mental illness, with the gender difference being more evident in the public HEI.

4 Discussion

In general, the main results of the research indicated that regarding the perception of anxiety state, 85% of the total respondents reported having noticed a change in their anxiety state in relation to the pandemic. For the public institution, 86% perceived a change in their anxiety state under this condition, and 81.3% of students from the private educational institution noticed some degree of change in their anxiety state under this condition.

Regarding the current anxiety state and its interference with academic activities, 40% of the total respondents reported feeling a lot of interference, 19% reported little interference, 30% reported some interference, and 10% reported no interference.

When this classification is divided by type of institution (private or public), 44% of students from the public HEI and 31% of students from the private institution reported that their current anxiety state greatly interferes with their academic activities.

Regarding the SRQ-20 and the incidence of common mental disorders, 66% of the total research participants showed an incidence of psychological suffering. For the public educational institution, 67% of the students showed an incidence of psychological suffering, and 63% of the students from the private institution showed an incidence of psychological suffering. These totals indicate that more than two-thirds of the research sample presented the presence of common mental disorders of a psychotic, anxious, and depressive nature.

In comparative terms, 81% of students from private HEIs noticed a change in their anxiety state during the pandemic, compared to 86% of students from public institutions. The incidence of common mental disorders was 67% among students from public institutions and 63% among students from private institutions. It is evident that the results between the HEIs were similar and quantitatively significant.

These results are consistent with studies on the mental health of university students (Maia; Dias, 2020) and the general population (Wang *et al.*, 2020; Weiss; Murdoch, 2020) regarding the psychological effect of the Covid-19 pandemic. Studies with Brazilian university students revealed that the causes for compromised mental health in relation to the pandemic were associated with changes in routine, sleep disturbances, lack of motivation to perform activities, absence of the academic environment and peers, issues related to productivity, concerns for family members in high-risk groups, among others (Coelho *et al.*, 2020). Other reports on the negative impacts of the period are associated with an excess of academic activities, various external interferences, internet connectivity, difficult adaptation to technologies, and inadequate study environments (Pereira *et al.*, 2020).

The most frequently cited negative point by students was the excess of academic activities (71%). Other negative points included external interferences (55.3%); internet connectivity (48.4%); meeting deadlines for activities (42.7%); difficult adaptation to technologies (16.9%); and an inadequate study environment.

International studies also show similar results regarding the pandemic and its impacts on the mental health of university students. Laranjeira and Querido (2022), in a study with Portuguese students, indicated that, in a population of 1522 students, 35.7% had a significant prevalence of stress symptoms, 36.2% had anxiety, and 28.5% had depression during the Covid-19 pandemic.

In a gender-specific analysis, the research presented here highlighted that the severity ranges of common mental disorders in relation to the female gender are significantly higher than the average severity ranges in the male gender. Regarding this aspect, studies indicate that women have a higher incidence of mental disorders and greater vulnerability (Araújo; Pinho; Almeida, 2005). It is suggested that female students revealed a higher incidence of common mental disorders due to the worsening social and economic crisis caused by the pandemic and the accumulation of activities delegated to women, domestic violence rates, and other factors (Loyola, 2020).

On the other hand, a study conducted at Mizoram University, India, during the Covid-19 lockdown period revealed that most participants paid more attention to mental health and psychological well-being, spending more time relaxing, resting, and exercising after the onset of the pandemic (Mishra; Kumar, 2023). The researchers indicate that these positive effects on mental health and psychological well-being may have helped participants adapt to other negative impacts on mental health, including increased pressure and stress characteristic of the period.

In general, research reinforces the need to expand discussions and studies on the topic, so that strategies to support the mental health of university students in new critical health scenarios, such as new pandemics, can be developed (Laranjeira; Querido, 2022). For this, it is necessary to improve the quality of life and mental health of higher education students, including strategies at both the individual and institutional levels (García *et al.*, 2022).

5 Conclusion

The results of this study reveal that the majority of students from public (86%) and private (81.3%) higher education institutions perceived changes in their anxiety state due to the pandemic situation. They also showed an incidence of common mental disorders, with psychosomatic, anxious, and depressive symptoms, in a quantitatively similar and significant manner.

Since the analyses and descriptions are strictly quantitative, it cannot be asserted that the changes in anxiety states and the incidence of common mental disorders are exclusively due to the pandemic. Other factors may have influenced the respondents' choices.

However, it is understood that the results of this research can contribute to a greater understanding of the reality regarding the mental health of higher education students from private and public institutions during the Covid-19 pandemic, such that

this depiction underscores the importance of developing educational and health policies aimed at the university population.

As this is a strictly quantitative study and within its limitations, there is a need for complementary qualitative and longitudinal research over time and after the pandemic period for possible comparison. Thus, it is expected that new studies can be conducted to expand discussions and practices for advancing this topic.

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